

Original Research Article

Cholesteatoma in a rural setting – The Nizamabad experience

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Abstract

Cholesteatoma is a disease of the middle ear characterized by the presence of squamous epithelium in the middle ear cleft. By secreting chemical enzymes, it causes manifestations by bone erosion which is dangerous to the surrounding structures which are intracranial and extra cranial. Due to advent of antibiotics and early diagnosis of ear disease, cholesteatoma is becoming infrequent. Previously commonly seen complications of cholesteatoma like mastoid abscess, automastoidectomy and sigmoid sinus abscess and granulations are rarely seen nowadays. A retrospective study of cases of ear discharge with cholesteatoma presented to Government Medical College/Government General Hospital, Nizamabad, Telangana, during the period of May 2013 to June 2015 was done. The experience was being presented in this study. 42 cases of cholesteatoma presenting with these features were recorded. Chronicity of the disease with varied presentations seen rarely and the prevalence of the disease in poor socioeconomic families who had no access to medical facilities and ignorance of the severity of the disease is the main factor for seeing the rare presentations not seen in other centres. Inaccessibility to medical facilities and lack of expert treatment was the reason for patients seeking medical attention with conditions due to chronicity which are rarely seen nowadays.

Key words

Cholesteatoma, Automastoidectomy, Mastoid abscess, Perisinus granulations, Mastoidectomy.

Introduction

Cholesteatoma is a disease of the middle ear characterized by foul smelling ear discharge,

deafness and is a disease of chronic duration, if left to itself, it can erode bone and damage the underlying important vital structures, like facial nerve, inner ear, can enter intracranial cavity,

spread to meninges, brain etc. Untreated can cause death over a period of time. It is a disease which is more often seen in undiagnosed and untreated chronic rhinitis leading to chronic ear discharge, and recurrent ear discharge following chronic allergic rhinitis, Eustachian tube obstruction causing retraction pockets which have lost the self cleansing mechanism leading to formation of cholesteatoma.

Material and methods

All the cases presented to the ENT Out Patient Department of Government General Hospital, Nizamabad, Telangana with complaints of ear discharge, hardness of hearing, headache and vertigo and failure of treatment for their complaints were studied. Patients presented from May 2013 to Jun 2015 were included in the study.

Inclusion criteria

All patients of age group 10-70 years were included. History of ear discharge (foul smelling), and on examination (diagnostic otoscopy) found to have flakes of cholesteatoma were included.

Exclusion criteria

Patients with recurrent rhinosinusitis with central perforation, not showing cholesteatoma flakes were excluded.

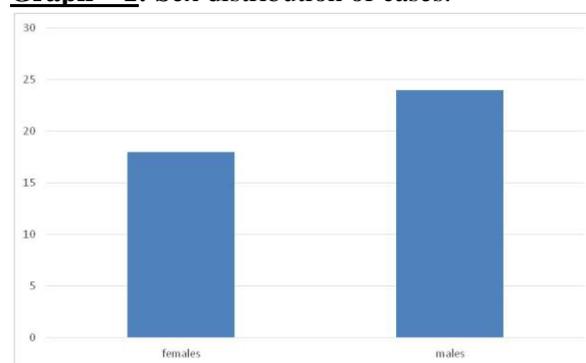
A study proforma for the study was made and the details entered in a standard approach. The main features of proforma were stressed on chronicity of disease, socioeconomic status and accessibility to medical and surgical treatment. After documenting all the findings of all the patients, the standard modified radical mastoidectomy of Bondy's was done and temporalis fascia was used to line the surgically created mastoidectomy cavity. Second stage ossiculoplasty was planned after the cavity was dry for 1 year. This approach of canal wall down mastoidectomy for cholesteatoma is selected because all the patients are situated at a distance from the hospital and are not tuned for repeated

follow up because of difficulty in travelling long distances and financial reasons.

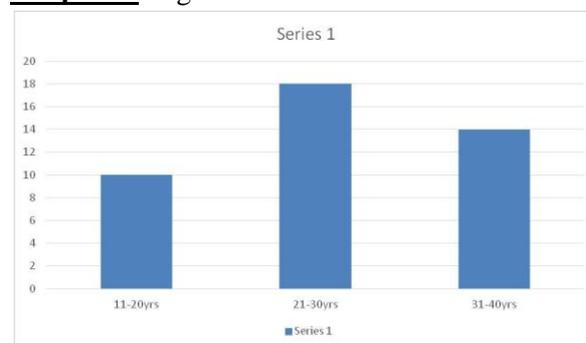
Results

A total number of 42 patients were observed during the period from May 2013 to Jun 2015. Out of that, 24 were male and 18 were female as per **Graph – 1**. Out of total 42 patients, 18 were of 21-30 years age group followed by 14 was of 31-40 years and 10 were of 11-20 years of age group as per **Graph - 2**.

Graph – 1: Sex distribution of cases.



Graph – 2: Age distribution of cases.



All the patients belonged to low socioeconomic status. 25 patients had bilateral ear disease, and 17 patients had unilateral ear disease. Chronicity of ear discharged varied from 3- 10 years. Type of perforation seen was of two types. Posterior marginal perforation and attic perforations were noted. Posterior marginal perforation with granulations around the ossicular chain was seen in 30 patients and 12 patients had attic perforations with cholesteatoma.

All the patients were subjected to pure tone audiometry. All the patients were found to have

conductive hearing loss of moderate to severe type. Of the 42 patients, moderate conductive hearing loss (30-45dB) was found in 26 patients and severe conductive hearing loss in 16 patients (45-60dB). All the patients were planned for a canal wall down approach with meatoplasty under general or local anesthesia depending on the anxiety level of the patient.

Operative findings revealed extensive cholesteatoma occupying the antrum, middle ear and around the ossicular chain in 36 patients, cholesteatoma eroding the incudostapedial joint in 28 patients, erosion of the sinus plate and covered with perisinus granulation in 1 patient, granulations eroding the facial canal in 1 patient who had post operative paresis and recovered after 3 weeks of conservative treatment.

The results after surgery for these 42 patients were tabulated and the observations were recorded. The patients were followed up for results from surgery to 1 year postoperative period. Dry ears after surgery was in 28 (66%) cases, Persistent ear discharge was in 14 (33%) cases, Closure of post auricular fistula was successful in 1 (100%) case, Closure of meatoplasty was in 3 (7%) cases,. Facial nerve paresis was in 1 case, Postoperative tinnitus was in 4 (10%) cases and Postoperative vertigo was in 3 (7%) cases.

These results were comparable to the results published in the literature. Recurrence of ear discharge after mastoidectomy was between 20-40% [3]. No serious complications were encountered in this study in immediate post operative period or later. (Figure – 1 to 4)

Discussion

Cholesteatoma of the middle ear is a condition in which there is ingrowth of squamous epithelium in to the middle ear. It is often stated as a disease with skin in the wrong place [1]. Squamous epithelium in middle ear behaves as a bone eroding disease. It is characterized as layers of squamous epithelium like layers of onion

enclosing debris in the middle. It is characterized by the presence of hyalases, collagenases which causes halisterisis or lysis of bone by these enzymes. Bone erosion into the surrounding intracranial structures like middle cranial fossa, sinus plate, facial nerve canal leads to various extra cranial and intracranial complications.

Figure – 1: Opening behind the left ear - Post auricular fistula. (Automastoidectomy)



Figure – 2: CT scan showing defect in the lateral wall of mastoid cavity corresponding to post auricular fistula.



Cholesteatoma is more common in the age group 20-40 years of age. Similar distribution of age incidence as in this study is reported in literature [2, 3].

Extra cranial (also called intra temporal) complications which are seen in chronic suppurative otitis media due to cholesteatoma are

subperiosteal mastoid abscess, facial nerve paralysis, labyrinthitis, petrositis, labyrinthine fistula, postauricular fistula.

Figure – 3: Microphotograph of cholesteatoma showing squamous epithelium and layers of keratin debris.

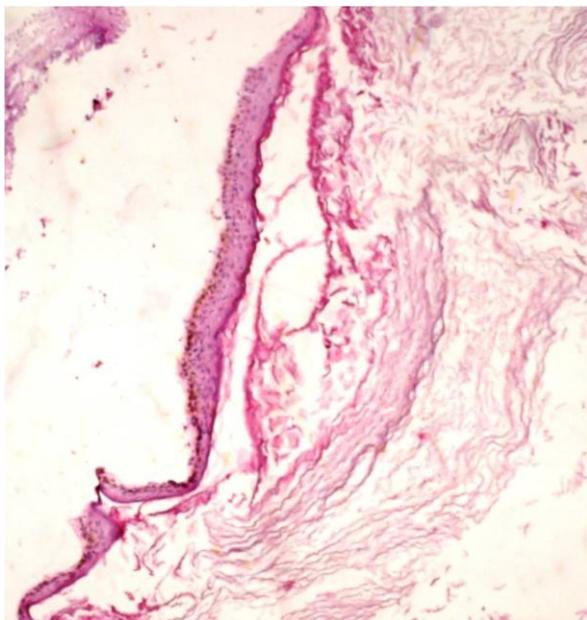


Figure – 4: Post operative picture showing healed post auricular fistula.



Intracranial complications of cholesteatoma are brain abscess which can be extra dural or subdural or in the lobe of cerebrum or cerebellum, meningitis, otitic hydrocephalus, sigmoid sinus thrombophlebitis.

The disease can spread from the ear to the surrounding structures by way of extension through bone by demineralisation or suffered resorption by cholesteatoma or osteitis in chronic destructive disease; spreading of infected clot through lateral or petrosal sinuses by thrombophlebitis within its Haversian vascular system , through normal anatomic pathways-via the oval or round windows, into the internal auditory meatus,the cochlear and vestibular aqueducts, thin jugular bulb, dehiscence of tegmen tympani and dehiscent suture lines of temporal bone, surgical trauma, accidents causing fracture lines, and neoplastic erosion; vestibular opening in stapedotomy operation, fenestration, periarteriolar spaces of Virchow Robin.

Factors which lead to occurrence of complications can also be due to patient conditions like age, immune state, inter current chronic disease like diabetes etc., bacterial virulence, antibiotic resistance, and efficacy of treatment undertaken, failure or noncompliance to medical instructions.

The frequency of complications occurring with cholesteatoma is very high compared to those in which the disease is of ‘safe’ type where it is characterized by presence of central perforation of tympanic membrane. The frequency of complications seen in earlier days has now come down drastically. The reasons for decrease in incidence of complications are awareness of disease of the ear, availability of medical attention, early usage of antibiotics, social and economic development leading to increased nutritional healthy status, improvement of hygiene, microsurgical operations on the ear due to improvement in equipment, skill and teaching of medical personnel.

Before the advent of antibiotics, automastoidectomy characterized by drainage of disease to the exterior was very frequent. This is an attempt by the body to decrease the number and severity of complications similar to drainage spontaneously of an abscess elsewhere

in the body. Automastoidectomy [1] is a rarely seen complication nowadays. When facilities are unavailable in remote inaccessible areas such complication can be seen in the population. Ignorance of the complication, illiteracy and inaccessibility to proper medical and surgical treatment is the cause of this late presentation. Mastoid abscess was a very frequent complication seen in earlier days. Availability of antibiotics, good surgical skills, otology specialist and microsurgical equipment has decreased the complications of mastoid abscess seen earlier [2].

Conclusion

These patients with long standing ear disease with complications presented late to Government Medical College, Nizamabad, Telangana which was started in the year 2012. It is situated in northern Telangana where access to medical treatment is difficult due to ignorance and illiteracy and lack of confidence to go to nearest places with skilled surgical facilities. This facility of medical treatment because it is available in remote areas, people are getting benefitted. This presentation is made with the intention of making aware the advantage of opening medical facilities in remote and peripheral areas so that the developments of medical science can percolate to the grass root level indirectly improving the health of the society.

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